

## Williams 9-20

- 1 Level location for base beam equipped rig.
- 2 Order equipment, and ask if replacement parts/equipment are requested. Operations need to hook up the Bradenhead through hardline to a tank and bleed off the pressure before the rig gets on location.
- 3 Check and report surface casing pressure prior to bleeding off. If surface casing is not accessible at ground level, re-plumb so valve is at ground level.
- 4 Spot a minimum of **12 jts of 2-3/8", 4.7#, J-55, EUE tbg**
- 5 MIRU WO rig. Kill well, as necessary, with freshwater treated with biocide. ND wellhead. NU BOP.
- 6 MIRU slickline. Fish plunger if necessary and tag for PBTD (should be at **7796'**). RDMO slickline.
- 7 PUH with tubing string to break any possible sand bridges, unseat landing joint and lay down. Do not exceed 80% of tubing tensile strength or 57,384 lbs.
- 8 MIRU "EMI". TOOH with 2-3/8" tubing. EMI tubing while TOOH. Lay down joints with wall loss or penetrations >35%. Replace joints as necessary. \*\*Keep yellow & blue band tubing. Note joint number and depth of tubing leak(s) on PRODUCTION EQUIPMENT FAILURE REPORT IN OPEN WELLS. Clearly mark all junk (red band) tubing sent to the yard.
- 9 TIH with 2-3/8" tbg and 4.5" RBP, (**4.5" csg 11.6#, I-80**). Set RBP @ **+/-1710'**, (collars are at **1684'** and **± 1726'**). Pressure test the RBP and casing to (2000 psi for 15 minutes. Spot 2 sx of sand on top of RBP and TOOH.
- 10 MIRU wireline. Chemical cut casing at **700'**. RD wireline and stand by.
- 11 ND BOP. ND 4.5" wellhead. NU BOP to 7-7/8" casing and install 4.5" blind rams.
- 12 TOOH with 4.5" csg and SB csg.
- 13 TIH with overshot/grapple and 4-1/2" casing. Torque up every joint on the way in. Catch fish top at 700'.
- 14 RIH with wireline freepoint tool and find freepoint. TOOH with freepoint tool.
- 15 RIH with string shot and set in 2<sup>nd</sup> collar above freepoint.
- 16 PU 4-1/2" csg so it is in neutral at 2<sup>nd</sup> collar above freepoint.
- 17 Apply LH torque to 4.5" csg. Shoot string shot. POOH and RDMO wireline.
- 18 Back off casing and TOOH with fishing string, SB useable csg.
- 19 PU and RIH with skirted sub, ported collar in open position and 4.5" csg with bow spring centralizers over every other collar from **1072'** to **472'** (use +/- 7 centralizers total, placed every other collar) Screw into backed off csg coupling. Land csg in 7-7/8" wellhead.
- 20 Cut 4-1/2" casing at appropriate height per operators recommendation.
- 21 ND BOP and NU and pack off surface casing wellhead.
- 22 Screw on 4-1/2" 5000 psi wellhead with 2 5000 psi valves. NU BOP to 4-1/2" wellhead. Change out rams to 2-3/8".
- 23 PU and TIH with shifting tool and 2-3/8" tbg to ported collar. Ensure latched in correctly by closing and opening collar (positive stop in both directions after 1/4 turn).
- 24 MIRU cementing equipment.
- 25 Circulate **80** bbl of drilling mud through ported collar. Commence pumping cement job consisting of 20 Bbls Sodium Metasilicate followed by **230** sx 15.8 ppg neat Class G

- cement with ¼ #/sx cello-flake. The cement to be retarded for 125 degree Fahrenheit for six hour pump time. (Attempt to cement from port collar to **773'** or surface casing).
- 26 Close port collar by rotating left 1/4 turn. TIH with **2** joints and reverse circulate 27 bbls with water or until the cement cleans up. POOH standing back tubing.
  - 27 RDMO cementing company. Shut well in overnight.
  - 28 MIRU wireline truck and run a CCL-GR-CBL-VDL from **1700'** to **100'**.
  - 29 If cement is not above **773'** then contact engineering for instructions on further cement work.
  - 30 PU and TIH with 2-3/8" tbg and retrieving head. Circulate sand off RBP at @ **+/-1710'**. TOOH with RBP and standing back tubing.
  - 31 Bail if the sand is tagged higher than 7664' in step 6.
  - 32 TIH 2-3/8" XN, and 2-3/8" 6.5# J-55 EUE 8rd tubing. Land tubing at +/- **7598** or 1 joint above the top **Codell perforation (7624-7644)**.
  - 33 Broach tubing to seating. ND BOPs. NU master valve and tubing head adaptor and install 3' pup joint above master valve. Hydrotest tubinghead assembly to 5000 psi for 15 mins.
  - 34 RDMO WO Rig.
  - 35 Clean location and swab well back to production, if necessary. Notify Foreman/Field Coordinator of finished work and turn well over to production team.

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